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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/758,112	01/16/2004	Kyung-Chul Woo	0630-1935P	4993

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EXAMINER

PATEL, RITA RAMESH

ART UNIT	PAPER NUMBER
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1746

SHORTENED STATUTORY PERIOD OF RESPONSE	NOTIFICATION DATE	DELIVERY MODE
3 MONTHS	02/06/2007	ELECTRONIC

Please find below and/or attached an Office communication concerning this application or proceeding.

If NO period for reply is specified above, the maximum statutory period will apply and will expire 6 MONTHS from the mailing date of this communication.

Notice of this Office communication was sent electronically on the above-indicated "Notification Date" and has a shortened statutory period for reply of 3 MONTHS from 02/06/2007.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

mailroom@bskb.com

Office Action Summary	Application No. 10/758,112	Applicant(s) WOO ET AL.	
	Examiner Rita R. Patel	Art Unit 1746	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 14 July 2006.
- 2a) ☐ This action is FINAL. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-21 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-21 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 16 January 2004 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|--|---|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413) |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | Paper No(s)/Mail Date. _____ |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| Paper No(s)/Mail Date <u>8/27/04; 7/14/06</u> | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

Priority

Acknowledgement has been made of applicant's claim for priority under 35 U.S.C. 119. This application claims priority on Patent Application Nos. 10-2003-0024910 and 10-2003-0088210 filed on 4/19/03 and 12/5/03, respectively.

Drawings

The drawings received 1/16/04 are acceptable for examination purposes.

Information Disclosure Statement

The listing of references in the specification is not a proper information disclosure statement. 37 CFR 1.98(b) requires a list of all patents, publications, or other information submitted for consideration by the Office, and MPEP § 609 A(1) states, "the list may not be incorporated into the specification but must be submitted in a separate paper." Therefore, unless the references have been cited by the examiner on form PTO-892, they have not been considered.

The information disclosure statement filed 8/27/04 fails to comply with 37 CFR 1.98(a)(2), which requires a legible copy of each cited foreign patent document; each non-patent literature publication or that portion which caused it to be listed; and all other information or that portion which caused it to be listed. It has been placed in the application file, but the information referred to therein has not been considered.

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Document number EP-1036874 has been provided by applicant but there has been no disclosed English translation, therefore this document has not been considered.

Specification

The disclosure is objected to because of the following informalities: it appears that in the Specification on page 10, line 7, applicant references the "discharge box 126" but it appears that the discharge box may be mislabeled and should instead be "discharge box 124". Similarly in the Specification on page 18, line 4, it appears the "second electrode 128" may be incorrectly labeled and should instead be "second electrode 527". Please review Specification for other similar errors and make appropriate corrections.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by Arai et al. herein referred to as "Arai" (Pub. No. US 2002/0121484).

Arai teaches a polluted water purifier for collecting a pollutant present in polluted water by flocculating the pollutant with a flocculant that has a mixer 5 for mixing the polluted water with the flocculant F and air (Abstract). An object of the Arai invention is

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to provide an easy-to-maintain polluted water purifier that permits easy separation and removal of dirt and detergent flocks, and to provide a washing machine (washing machine) with said polluted water purifier (Paragraph [0014]). The Office notes that Arai does not stately claim the polluted water to be "plasma", however it will be elaborated herein that the structure of Arai reads on the structure claimed by applicant. Arai teaches opposing electrode structure and a voltage supply to treat the medium in between the electrodes; the structure of Arai is the same structure as applicant's plasma generator. It is well settled that the intended use of a claimed apparatus is not germane to the issue of the patentability of the claimed structure. If the prior art structure is capable of performing the claimed use then it meets the claim. *In re Casey*, 152 USPQ 235, 238 (CCPA 1967); *In re Otto*, 136 USPA 459 (CPA 1963). Therefore, although Arai claims to purify polluted water, the apparatus of Arai is fully capable of performing applicant's intended use of processing a "plasma".

Arai teaches a washing tub 101 (inner tub), a water tub 102 (outer tub), a drain pipe 22 (inflow passage), an agitation cylinder 18 (discharge box), a filtering section 19 (filter), pipes connected to a three-way valve 220 (circulation duct), a pump 103 (circulation pump), a spiraling water stream F in agitation cylinder 17 (spray nozzle), a water concentration sensor 217 (contamination degree sensor), and an aspirator 5 (air supply unit). See Figure 14.

The polluted water purifier of Arai may be of a type that flocculates detergent components and dirt by dissolving a metal electrode (electrode) through electrolysis (Paragraph [0207]). Arai teaches that using electrodes are commonly known in the art

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of rejuvenating wastewater in washing machines; Arai offers a teaching of Japanese Patent Application Laid-Open No. H10-118390 which discloses a washing machine in which the pollutants such as a surfactant contained in washing wastewater is removed by being made to flocculate and precipitate by electrolysis; a treatment bath having a positive and a negative electrode is provided in the middle of the drainage path of washing wastewater. The washing wastewater is electrolyzed in the treatment bath, and metal cations are produced therein, which cause the dirt and detergent to flocculate and precipitate as flocks. The flocks are then removed, so that purified washing wastewater is drained from the treatment bath.

Arai further elaborates that the purifier of the washing machine is incorporated with a pH value controller for controlling the pH value of the polluted water (Paragraph [0019]). For example, Arai specifically teaches using catalyst Al_2O_3 (dielectric particle) (Paragraph [0294]).

Claim Rejections - 35 USC § 102 / 35 USC § 103

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and

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the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 2-9, 11-14, and 16-21 are rejected under 35 U.S.C. 102(b) as being anticipated by Arai et al. herein referred to as "Arai" (US Patent No. 6,820,446), or in the alternative, rejected under 35 U.S.C. 103(a) as being unpatentable over Arai as applied to claim 1 above, and further in view of Inoue (US Patent No. 3,518,174).

It is known in the art to electrically charge electrodes by way of high voltage generators; electrodes are electrical conductors used to create opposing anion (+) and cation (-) flows; electrodes inherently function from electrical feed means. Arai supports the usage of electrodes in said washing machine and thus, the position is taken that one of ordinary skill in the art would at once envisage the electrode operated by a high voltage electrical feed means.

In the alternative, Inoue further supplants the concept that it is known in the art of electrodes used in washing machines to power the electrodes by means of a high voltage generator; Inoue discloses a battery 312 that is connected across the electrodes 310, 310' in parallel with the secondary winding 313 and a DC blocking condenser 314 which supply the high-frequency alternating current to be superimposed upon the direct current, also an AC source 316 (high-voltage generator) is connected across the primary winding 315 of the transformer.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

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(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

Claims 10 and 15 are rejected under 35 U.S.C. 103(a) as being unpatentable over Arai and Inoue as applied above to claims 8 and 13, and further in view of Lakdawala et al. herein referred to as "Lakdawala" (US Pub. No. 2006/0060218 A1).

Arai and Inoue fail to specifically disclose the catalyst TiO_2 for remediation cleaning in the washing machine. However, Lakdawala teaches a washing water system that uses TiO_2 for cleaning aqueous solutions; specifically, Lakdawala discloses a turbine washing system having a water making apparatus which extracts water from a turbine site and treats the water to obtain extremely clean water (Abstract), the filtering and purifying means 41 may employ a photo catalyst material such as TiO_2 (Paragraph [0030]). It would have been obvious to one of ordinary skill in the art at the time of the invention to use catalyst TiO_2 in the invention of Arai to achieve aqueous wastewater cleaning; TiO_2 is known in the art to serve as a material for remediation, oxidation of substrates, as well as, a photocatalyst, therefore, using this catalyst in Arai would be a known alternative in cleaning/refreshing dirtied washing water.

Conclusion

The prior art made of record and not relied upon is considered pertinent to applicant's disclosure. Fornsel et al. herein referred to as "Fornsel" (US Paten No. 6,659,110). Fornsel teaches an apparatus for cleaning drums or belts by spraying a jet of a plasma thereunto. A plasma nozzle 14 has a tubular outer electrode 20, a stud-

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type inner electrode 32, a high-frequency high-voltage generator 34, and an arc 36 of the arc discharge which is entrained by a swirling flow of working gas to mouth 18.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Rita R. Patel whose telephone number is (571) 272-8701. The examiner can normally be reached on M-F: 8-5.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Michael Barr can be reached on (571) 272-1414. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Rita R. Patel

A handwritten signature in black ink, appearing to read 'Michael Barr', with a stylized, sweeping underline.

MICHAEL BARR
SUPERVISORY PATENT EXAMINER